the ligature. That failure, in some instances, has been due to the softening or giving way of the material used, there can, of course, be no question; but I cannot help thinking that too free a separation of the sheath in passing the ligature may have had, in many instances, more to do with the want of success than the kind of ligature chosen. As the vitality of an artery depends in great measure upon the blood-supply that it receives from its sheath, it is easily conceivable how very little more or less separation may determine the success or failure of the ligature. No point, I suppose, is more strongly insisted upon in the works of surgery than the necessity of exposing as little of the vessel in its long axis as possible.

If two ligatures be applied, and the vessel divided between them, all risk of too free a separation of the sheath is absolutely avoided, as one ligature can be applied at the spot where the sheath is separated above, and the other where the sheath is separated below. After the vessel is divided, each cut end retracts, drawing the respective ligature well into the sheath, thus leaving the blood-supply of no portion of the vessel on the proximal and distal side of the upper and lower ligatures respectively in any way interfered with. The artery is thus placed under very nearly the same conditions as one which has been ligatured in a stump, and exactly under the conditions as one the ends of which have been secured in a wound, and from such secondary hemorrhage is very rare. Indeed, I am not aware that, after the two ends of a divided vessel have thus been tied in a wound, hemorrhage, except from the slipping of a ligature, has ever occurred.

The normal longitudinal tension of the vessels constitutes another, and I believe not inconsiderable, source of danger in ligaturing an artery in its continuity. A transverse wound of an artery, as first pointed out by Mr. Savory, in consequence of this elastic tension, assumes a diamond shape. Should any part of the ligature cut through the vessel before it has become permanently occluded, this tension, by causing such a cut in the vessel to gape, thereby disturbing the connection of any internal clot that may have formed, or adhesions of the coats that may have taken place, must tend to the production of secondary bleeding. In a case of secondary hemorrhage under the late Mr. Callender, on cutting down at the seat of ligature to secure the bleeding points, the hemorrhage was clearly seen to be due to such a cause. The vessel, which had been secured by a catgut ligature, had given way opposite the knot (which itself was intact), and a gaping wound one-tenth of an inch wide existed in the walls of the vessel. By applying two ligatures, and dividing the vessel between them, all tension is taken off, and both ends are placed in a state of rest—the most favourable condition for healing.—*Brit. Med. Journ.*, April 7, 1883.

Deligation of the Common Carotid.

WELJAMINOW, of St. Petersburg, has collected thirty-three cases (*Deutsche Med. Zeit.*, No. 40) in which the common carotid was tied. The artery was ligatured four times for hemorrhage due to wounds, once for angioma, fifteen times for malignant tumour, for or during operations on the head eight times, four times for operations about the neck, and once for aneurism (Brasdor-Wardrop's method, *i. e.*, ligature on distal side of sac). The right artery was tied eighteen times, the left fourteen (*sic*); eighteen times in men, fifteen in women. The age of many of the patients (fourteen) was between fifty and sixty; in two cases, however, the age was seventy-two, and in one only twenty-one months. These last three patients got over the operation very well. The wound healed by first intention sixteen times. Erysipelas and secondary hemorrhage were each observed once only. To prevent the occurrence of cerebral disturbance the artery was systematically compressed some days before ligature. Eleven out of the thirty-three patients died soon after the deligation (33.3 per cent.), but for statistical purposes only 25 (? 23) are available, of which one died, giving a mortality of 4 per cent. The author has collected yet other twenty cases, all treated antiseptically, and all recovered. In conclusion, the writer dilates on the importance of a double ligature, between which the artery is divided.—*Med. Times and Gaz*, Oct. 28, 1882.

Nerve Stretching.

Dr. CECCHERELLI (*Lo Sperimentale*, 1882) contributes a very complete and interesting summary of the literature and results of this operation. He divides his subject into two parts. In the first he collects the anatomical and physiological facts, and in the second he describes the operation, the indications for its employment, and the results so far obtained.

As to how much the nerve is to be stretched, he cites many experiments in animals, and gives Frombetta's careful experiments as to the weight the different nerves removed from the body are able to sustain. He does not think these experiments of much practical good; the surgeon must be rather guided by the sensation of greater or less elasticity and resistance which he experiences. The anatomical lesions are of the perineurium, capillary vessels, and nerve-tubes, causing exhaustion and degeneration. The physiological effects are interruption of the ascending sensory current and continuance of the descending motor current; hence, perhaps, the frequent failure of nerve-stretching in tetanus (Artaud and Gilson). Quinquaud observed that in the stretching of the sciatic nerve, for example, there was also anæsthesia of the area innervated by the sciatic of the opposite side, and sometimes also in that of the crurals of the two sides. On stretching the right sciatic, there was anæsthesia of the right limb posteriorly; stretching shortly afterward the left sciatic, there were anæsthesia of the left limb posteriorly, and return of sensibility in the right limb. When a nerve is stretched, the effect is therefore transmitted to the posterior part of the medullary axis. Labord and Debove divided the spinal cord and caused epileptiform movements; they stretched the sciatic nerve, and the movements were suddenly diminished. Wiet and Marcus found that when the pneumogastric was stretched, the movements of the heart were accelerated.

The conclusions from these facts, and, as corollary, that the stretching of a nerve produces ecchymosis under the perineurium, rupture of the nervous fibres, and ascending degeneration, as in partial section of a nerve, would be, that nerve-stretching causes loss of sensibility; that the sensory ascending current disappears, while the motor or descending current is preserved; that it affects the centres and may cause trophic disturbances with persistence or not of anæsthesia. Moderate stretching produces anæsthesia in the territory of the nerve without loss of motility; violent stretching causes prolonged and persistent anæsthesia with constant alterations of motility and nutrition. The frequency of functional disturbances of parts far from the seat of operation proves that the spinal cord is influenced by the stretching of certain nerves (the sciatic and brachial plexus); for lesser nerves and for cords farther from the medulla, further researches are necessary. Notwithstanding the microscopical lesions which have been observed, the manner in which the distension acts is not yet determined (Chauvel).

In the second part, Dr. Ceccherelli describes the operation. He recommends the incision to be made as near the supposed seat of irritation as possible, the stretching to be made in the centrifugal and centripetal directions, and not excessive, with the finger or blunt hook. With the finger the surgeon is best